FINAL REPORT

Spring Mission: February 27, 2009 – April 10, 2009

Luigi De Cesaris & Alberto Sucato, Restorers

"Conservation and Documentation of the Wall Paintings at the Red Monastery, Sohag"

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Address: 8700 Crownhill Blvd. Suite 507, San Antonio, TX 78209 Tel: (210) 821-7000

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INTRODUCTION

This report covers work performed under the sub-grant, "Conservation and Documentation at the Red Monastery, Sohag", an activity of the Egyptian Antiquities Conservation Project (EAC) funded by the United States Agency for International Development (USAID). The American Research Center in Egypt (ARCE) was awarded the EAC project agreement in July 2004. The following report describes work performed from February 27th to April 10th 2009.

The conservation campaign conducted in the Monastery of St Bishoi (Red Monastery) at Sohag during the spring of 2009 involved various parts of the building: the facade (F); the first tier to the left and right of the arch giving access to the triconch[1]; the prothesis (NEC) and adjacent north corridor (NEB) and the counterparts to these areas on the south side of the monument, namely the diaconicon and the south corridor (Fig. 1) (SEC-SEB).

Fig. 1

The mission also afforded us an opportunity to check the effectiveness of the restoration work carried out on the plaster and stone surfaces. The restoration work also involved both the transit areas between the facade and the triconch.

In the facade (F), work was carried out on all the surfaces including the late antique plaster, the medieval plaster, the stone moldings, the woodwork and more recent architectural and restoration work undertaken since the time of the restoration campaign conducted by the Comité.

[1]This campaign has seen the completion of the left side of the facade. The restoration of a few areas near the floor will have to wait until the scaffolding is removed.

As a result of the work, particularly on the right side of the facade (Fig. 2), a substantial percentage of the painted surface has been restored, enabling us to ensure the esthetic unity of restoration over such an enormous area.


Fig. 2

The theories advanced during the previous mission with regard to the changes affecting the masonry structure have thus been confirmed and the restoration work has enabled a more organic reading of the plaster types.

On the south side of the facade we were able to explore in greater depth the technical characteristics, state of preservation and earlier restoration work in an area we had not worked in before by adapting the working criteria, guidelines and methods already applied on the north side to the different materials and surfaces.

In the prothesis (NEC) the east, west and south walls were completed to ground level together with the room in the east wall, possibly once used as a sacristy. In the adjacent corridor (NEB) all the surfaces have been restored with the exception of the barrel vault and the west wall above the access door to the facade where a test cleaning measuring approximately 50 x 120 cm has been carried out on the painting.

In the diaconicon (SEC) the test area where the plaster has been removed from the vault has been enlarged to cover a quarter of the entire surface (Fig. 3). The work has enabled us to recover the underlying geometric decoration although it is very patchy.


Fig. 3

In the adjacent corridor (SEB), all the late antique surfaces (north wall) have been completed and even those partially concealed[2] have been recovered. All the white plaster on the walls and vault (Fig. 4) has been cleaned and treated.


Fig. 4

[2] On the north wall the removal of the plaster (presumably applied by the Comité) covering the original phase has enabled us to recover some extremely interesting fragments of decorated plaster.

All areas of intervention were comprehensively photographed before, during and after restoration.

WORKING METHODS

Architecture

The facade (F) is built of blocks of local limestone, bedded in a fine-grained mortar. The joints are very precise and thin (1-1.5 mm). Unlike the masonry of the triconch where the limestone blocks are supplemented by brick infilling and mortar, the bases and interiors of the niches in the facade are entirely made of limestone.

The conservation work carried out in the first tier to the north (Figs. 5 and 6) and south of the arch made it necessary to document the original construction features and various instances of restoration and rebuilding as work progressed.

Fig. 5


Fig. 6

Numerous interventions including the removal and repositioning of original blocks and repairs using new blocks carried out by the Comité, made it necessary to record the entire surface during the restoration process to make the original phases easier to understand and distinguish them from instances of rebuilding.

In the first tier there is still a considerable amount of late antique plaster that, on the basis of a preliminary analysis, bears a strong resemblance to the plaster in the first tier of the triconch.

With regard to the construction features of the facade, please refer to the more detailed description in the report on the Spring 2008 Mission[3].

In the transit areas between the facade and the triconch, both the single-block architraves appear to have been replaced by the Comité. The southern one is decorated with three crosses painted in red[4], the central one of which is incised as well as painted (Fig. 8).

[3] See L. De Cesaris, A. Sucato, Red Monastery – Monastery of St. Bishoi, Conservation of the wall paintings – Final Report, 8 March – 20 April 2008.

[4] Further studies will enable us to formulate a theory about this decoration so that it can be dated.

Fig. 7

Fig. 8

Also on the south side, in the corner between the facade and the triumphal arch there is evidence that the blocks have been extensively tampered with. The Comité carried out major repairs in the south corner.

The architrave of the doorway to the south corridor, located in a heavily repaired area, has also been reused. On the lower face there is a cross in low relief that has been partially chiseled off.

In the first tier of the facade, the removal of repairs to the plaster has enabled us to make out three vertical lines where the original plaster and the late antique masonry were chiseled away for the insertion of posts for three wooden balustrades, mounted at right angles to the facade. On the north side (Figs. 9 and 10), the post was installed against the pilaster to the left of the access door to the triconch.

Fig. 9

Fig. 10

At the front there is a corresponding break in the plinth of the granite column. On the south side, there are breaks in the pilasters on the left and right of the door leading to the triconch (Figs. 11 and 12).


Fig. 11


Fig. 12

Opposite the northernmost one there is a matching break in the granite of the corresponding frontal column base.

Work on the plaster in the prothesis (NEC) (Fig. 13) and the adjacent corridor (NEB) has enabled closer study of the characteristics of, and changes made to, the masonry.
For a description of this area, please refer to the Autumn 2007 and Spring 2008[5] mission reports.


Fig. 13

We can infer from our work in the four niches that they were built at the time of the reconstruction of the external wall, in some cases reusing stone from the late antique building. This is particularly evident in the right-hand niche on the north wall, entirely hollowed out of a single block of limestone (Fig. 14).

[5] L. De Cesaris, A. Sucato, Red Monastery – Monastery of St. Bishoi, Conservation of the wall paintings – Final Report, 26 October – 21 December 2007; L. De Cesaris, A. Sucato, Red Monastery – Monastery of St. Bishoi, Conservation of the wall paintings – Final Report, 8 March – 20 April 2008.


Fig. 14

A cavity has been hollowed out of the internal profile of the uprights, possibly to house a wooden door. Two holes on the right-hand upright could represent the housings for the hinges. It is worth pointing out that the stone shows signs of having been worked with a marteline hammer closely resembling that used on the stone blocks of the late antique phase. There is a small recess above the left-hand niche in the same corridor. It appears to have been partially blocked up with unmortared reused pieces of stone probably from the original late antique structure. The shaft of a small column and a section of molding with residual polychrome decoration are clearly visible (Figs.15 and 16).

Fig. 15

Fig. 16

The study of this recess, its contents and the niches, and the removal of repaired plaster in the vault should add an interesting new dimension to our knowledge about the architectural development of this area[6].

In the diaconicon and the adjacent corridor (SEC-SEB) (Fig. 17) the repairs to the plaster, probably carried out by the Comité, suggest that extensive restoration and major alterations to the masonry have taken place.

Fig. 17

The niches in the east wall of the corridor (SEB) (Fig. 18) and in the diaconicon (SEC) (not yet examined) appear to date from the time of the reconstruction of the external wall.

[6] It is possible that during the late antique period the vault of the corridor was not pointed as it is today.


Fig. 18

Plaster

Facade (F)

Before our restoration work began, we observed various repairs made to the plaster under a raking light. We feared that we would only be able to recover small portions of original plaster in a particular band (Fig. 19) that was highly exposed in terms of the religious function of the monument and changes affecting the structure.


Fig. 19

However, the restoration work has allowed us to recover a considerable amount of plaster that can be attributed to the third phase, both from the flat panels and the molded elements of the plinths of the pilasters and semi-columns (Fig. 20).


Fig. 20

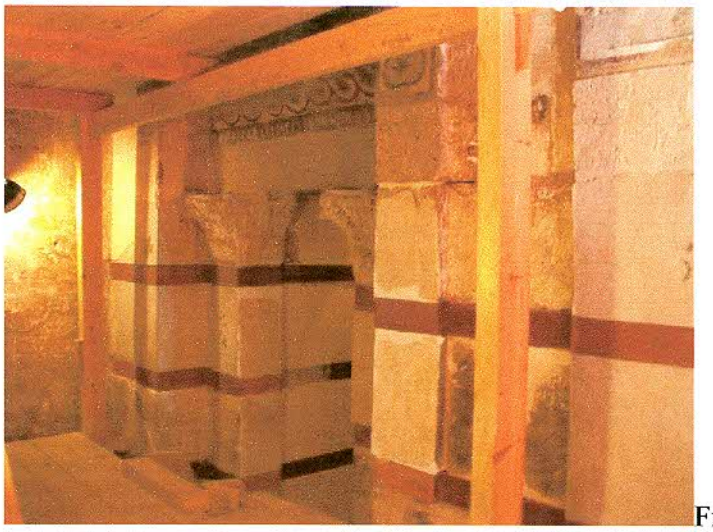


Fig. 21

Fig. 22

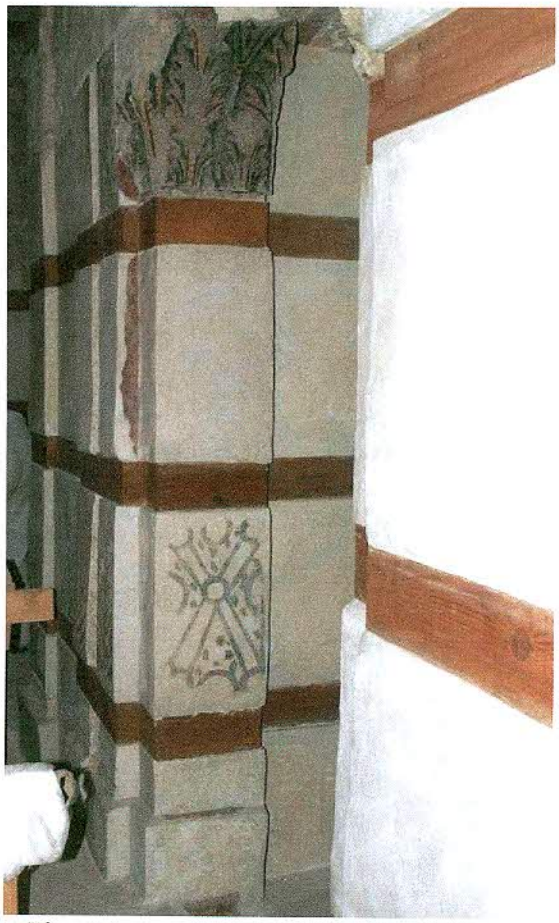


Fig. 23

In the first tier, in addition to extensive portions of third-phase plaster (comparable with the smooth plaster in the first tier of the triconch), there are small fragments of medieval plaster based on lime, sand and straw on the north side of the facade and near the north-east corner in particular. In the transit areas between the facade and the triconch, it has been possible to recover a considerable amount of extant late antique plaster, although it is fairly patchy (Figs. 22 and 23). We have learnt as a result that the side walls of the transit areas were not decorated[7] (Fig. 24).


Fig. 24

Above the south door leading to the triconch, the surviving plaster is all from the third phase. However, it is clear that, in the region of the female figure inscribed within a clipeus, the painter of the fourth phase applied his signature white wash to the preexisting plaster.

[7] These little side walls flanked by two painted pilasters are the only elements of the third phase to have been left white since the beginning. This is explained by the fact that they could not be seen from outside or inside the triconch.

North corridor (NEB)

As described in our earlier report, the late antique plaster in the north corridor is made of a mortar containing typical local materials (lime and local sand), distinguished by a white color and smooth surface finish that suggest the presence of a percentage of powdered limestone in the mix. As already stated, this plaster[8] bears a close resemblance to that used in the lunettes in the prothesis (NEC) and can be distinguished from the third-phase plaster in the triconch (T) on the grounds that the mix contains more binder and less quartz sand.


Fig. 25

With regard to the description of the working methods used on the plaster on the south wall where restoration work has been completed, please refer to the 2007 and 2008[9] reports. At the south-west corner of the wall, at the level of the impost of the vault, the removal of the modern plaster has enabled us to recover a considerable area of painted surface. The paint layer was applied over a slightly irregular layer of pale pinkish white wash that overlies the

[8] Ascertained by means of close examination using a pocket magnifier in patchy areas.

[9] See L. De Cesaris, A. Sucato, Red Monastery – Monastery of St. Bishoi, Conservation of the wall paintings – Final Report, 26 October – 21 December 2007.
L. De Cesaris, A. Sucato, Red Monastery – Monastery of St. Bishoi, Conservation of the wall paintings – Final Report, 8 March – 20 April 2008.

preexisting decoration. Decorated fragments of the underlying painted cornice can be seen where there are gaps in this layer[10] (See Fig. 48).
The plaster on the west wall is similar to that on the south wall. In the south-west corner, part of the red decorative band (inscribing the painted braid) extends over the abovementioned plaster. The entire wall was then finished with one or more coats of lime-based white wash[11] (Fig. 26).


Fig. 26

Under a raking light, the plaster in the lower area shows pick marks overlaid by layers of white wash. In the vault, the medieval phase plaster (contemporaneous with the rebuilding of the external walls) overlies the painted plaster[12].

The medieval plaster layers in the corridor (Fig. 25), the right-hand section of the west lunette and the entire south and east walls, share similar features: an average thickness of approximately 8-10 millimeters; a fine, white, well-blended mortar; a low percentage of sand and a considerable amount of straw in the mix. The surface of this plaster is finished with a slightly irregular white wash[13].

[10] Particularly where, for reasons already explained, the preexisting painting was applied using the encaustic method.
[11] This white wash is probably the same pinkish white present at the western end of the south wall.
[12] Today, this is covered by a further coat of white plaster, probably applied during twentieth-century restoration work by the Egyptian Antiquities Organization.
[13] We think that during the medieval phase, the plaster in internal spaces was restored with extreme parsimony, incorporating and maintaining *in situ* the fragments of late antique plaster. We have seen that, during this period of major rebuilding, white wash was the means used to integrate new plaster with older plaster types.

Diaconicon and south corridor (SEC and SEB)

The plaster in the south corridor appears to have been repaired relatively recently, possibly after the restoration work carried out by the Comité and before the twentieth-century intervention by the Egyptian Antiquities Organization. The mortar used is distinguished by a mix of lime and fine sand that gives the plaster a pinkish-yellow color. The surface of this plaster follows the irregular outline of the masonry structure (Fig. 27).


Fig. 27

Fortunately, part of the late antique plaster has survived on the north wall in the form of a band approximately 80 cm wide running below the impost of the vault.
The plaster appears to resemble closely the late antique plaster in the opposite corridor (NEB) (Figs. 28 and 29).

Fig. 28

Fig. 29

In the diaconicon (SEC) too, the restoration work carried out by the Comité concealed the preexisting late antique plaster. As a result of the removal of part of this earlier restoration work, we have been able to recover an extensive, though fragmented portion of the underlying decoration. In this case too, the features of the plaster (Figs. 30 and 31) can be likened to those of the late antique plaster in the adjacent corridor (SEB) and the north corridor (NEB).

Fig. 30

Fig. 31

Paint Layer

Facade (F) (north side)

As already mentioned with regard to the working methods for plaster, we were surprised to be able to recover such a large surface area of third-phase plaster in the first tier. The fragments are extremely limited from the point of view of the paint layer, but suffice to show us that the distinctive decoration of the fake marble panels present in the higher tiers exists in the first tier as well (Figs. 32 and 33).

Fig. 32

Fig. 33

The way the woodwork is incorporated in this division means that the facade has the appearance of being divided into horizontal modules in the first tier as well.

In the lower part of the north east corner where the third-phase plaster is patchy, we have discovered a typical first-phase decoration under a thin preparatory layer covering the stone (white wash) (Fig. 34). This decoration, that we may consider as being contemporaneous with the checkerboard pattern inside the panels of the stone arch above (Fig. 35), depicts a wall with alternating blocks of stone. The joints are rendered graphically with a thin black line.

Fig. 34

Fig. 35

Facade (F) (south side)

As on the north side, there is a female image inscribed within a clipeus (Fig. 36) above the south door leading to the triconch.

Upon close inspection, the painting inside the clipeus is comparable to the fourth phase of painting. However, we believe that the painter left the geometric shapes and garland from the encaustic phase (third phase) unchanged and repainted only the central figure.

Fig. 36

As already pointed out with regard to the other image inscribed within a clipeus on the north side of the facade (Fig. 37), the figure bears a resemblance to the one over the door in the prothesis (NEC) (Fig. 38). In this case, the resemblance is more marked.

Fig. 37

Fig. 38

Even taking into account the extremely patchy state of preservation of the paint layer, the brown drapery of the veil and robe and the lines highlighting the eyes bear a close resemblance to the style of the painter of the *Virgo Lactans* (fourth phase).

To the left of the clipeus, a block slightly displaced from its original position bears a Coptic inscription in large red letters (Fig. 39). This is painted on third-phase plaster.


Fig. 39

It should be noted that the characteristic red band used by the encaustic method painter to outline his geometric motifs (Figs. 39 and 40) is present in this area.


Fig. 40

Another fragment of an inscription extends below, painted directly on the stone of the architrave.

This architrave, replaced[14] by the Comité, bears two painted geometric crosses on the outside and one in the center, incised and inscribed in a circle (Figs. 41 and 42). The central cross, composed of intersecting semi-circular lines, is framed by two parallel vertical lines. The red line and the way the pigment has been applied lead us to associate the execution of the crosses with the abovementioned Coptic inscription.


Fig. 41

To the left of the architrave there is part of an Arabic inscription on a fragment of third-phase plaster, now lacking its original coloring (See Fig. 40).


Fig. 42

Slightly above this area there is a wooden element surviving from the medieval[15] period (Fig. 43).

[14] Or possibly only extensively reworked.

[15] Most of the woodwork was replaced during the restoration work carried out by the Comité. In this instance, an element has survived that although not late antique was probably installed during the medieval restoration. See report: *Microstratigraphic analysis of thin section using spectrophotometer carried out in order to study the plaster, preparatory layers and paint layers. Identification and accurate dating of wood.* Artelab s.r.l. 2008, pages 20-22.

Fig. 43

North corridor (NEB)

All conservation and restoration work has been completed in this area with the exception of the vault and the west wall where a large section is undergoing test cleaning (Fig. 44). Upon close inspection, it is possible to discern a certain unity between the decorative elements commonly encountered in Coptic painting from the late antique to the medieval periods in this section.

However, when the state of preservation, the linear style of drawing and the characteristic fineness of the paint layer are observed, one has the impression of being faced with a working method that is different to and more fragile than the other late antique decorations in the church.

Fig. 44

Although the test cleaning is of a limited size, the painting appears to depict an enthroned figure, possibly Christ Pantocrator, with a standing figure on the left, most likely an archangel.

During the next campaign work will be carried out on the plaster of the vault. The modern repairs in gypsum will be removed and restoration of this icon will continue, thereby providing an opportunity to study this section in depth and compare it with the other phases of painting in the building.

Fig. 45

On the left-hand (south) wall, the recovery of the pattern of concentric intersecting circles and the medieval inscription on the white wash begun during the previous mission has been completed (Fig. 46)

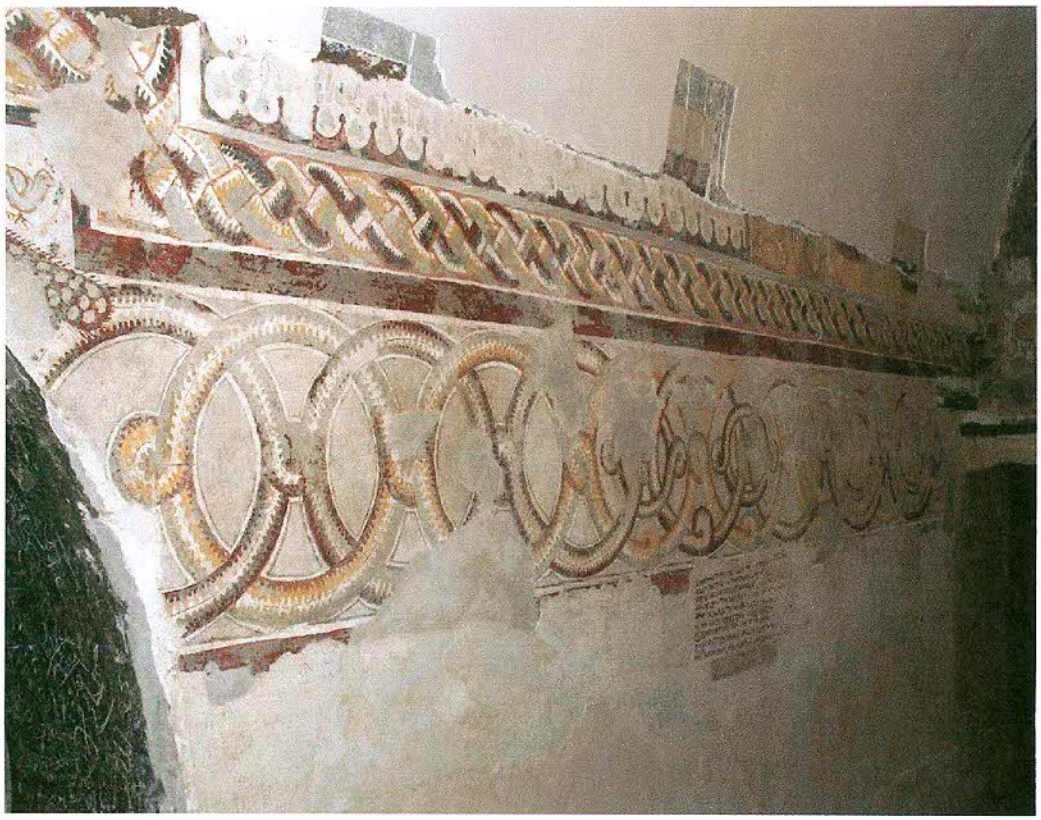


Fig. 46

Near the south-west corner, at the impost of the vault, the removal of the modern gypsum plaster has revealed the lower part of the figures of three saints painted on a portion of plaster that was completely hidden prior to the restoration (Fig. 47).

Fig. 47

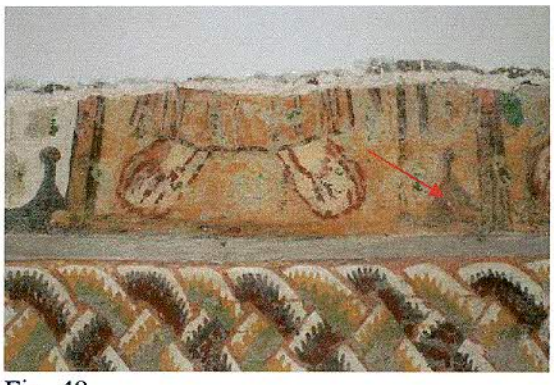


Fig. 48

Fig. 49

From a chronological point of view, we are certain that this painting was executed over the preexisting decoration (Fig. 48) attributed to the first or second phase[16]. Subsequently, the plaster was cut at the time of the major rebuilding of the external wall during the medieval

[16] Fragments of the underlying decoration can be seen in areas where the paint has fallen away.

period and the upper part was mutilated. The remaining fragment was then covered by the medieval plaster associated with the phase of the large painted crosses.

The feet and sandals of the figures are painted with a bold red line on an ocher background. The robe of the figure on the far left is a darker shade of the same yellow as the background. The robes of the other two figures are, starting from the left, the same yellow as the background and brownish-red respectively. The shapes and details are outlined in black and brown. The three saints appear to be contained within two black frames, suggesting that originally they were inscribed within painted niches or architectural features. The figure on the far left appears to be depicted alone while the other two are together.
Whilst acknowledging several technical differences, on the basis of close examination of the subject, we are inclined to associate these fragments with the phase of the *Virgo Lactans* (Fig. 49).

South Corridor and Diaconicon (SEC-SEB)

Although the portion of painted late antique plaster in the corridor is in a unique state of preservation[17], the technical characteristics of the brush strokes and the presence of the red band enclosing the geometric shapes lead us to conjecture that this decoration is contemporaneous with the one running the length of the south wall in the opposite corridor (NEB).

The decorative band (Fig. 50) is divided into several tiers. The upper part is framed by a series of double semi-circles, the inner of which is divided up by radiating lines. The lower part is delineated by a red band. These two bands enclose a pattern comprising two strips of approximately the same width. The upper strip is decorated with geometric shapes, quatrefoils and roundels. The lower strip, divided from the upper only by a thin line, is decorated with a plant motif and geometric and trilobate shapes.

[17] The late antique painted plaster has been severely blackened by a thick sooty deposit that is not present on the late antique plaster in the north corridor (NEB).

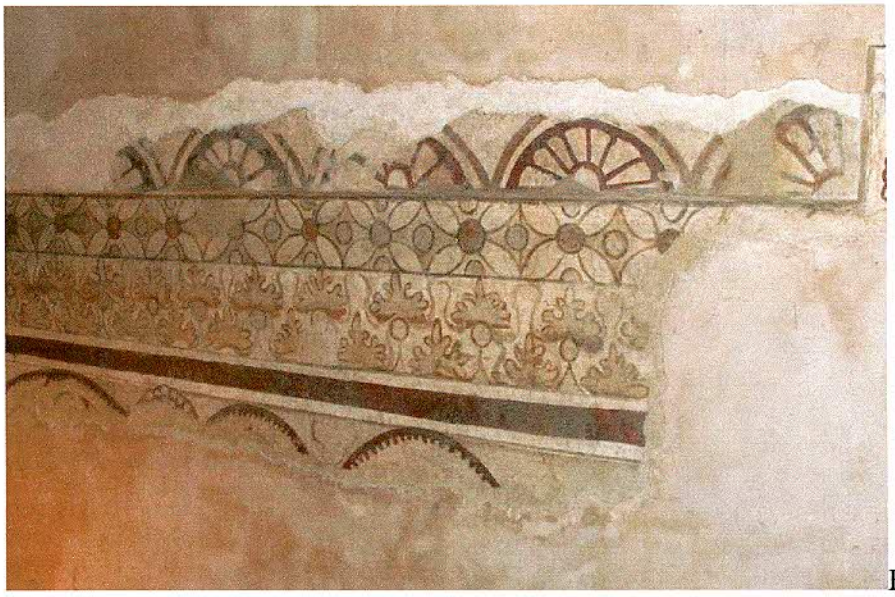


Fig. 50

Below the red band and now in an extremely patchy condition, there was once a pattern of large concentric intersecting circles (approximately 70 cm in diameter). Between the circles and the red band are three painted baskets containing small circular objects that presumably represent grapes. The entire area is painted with a limited palette comprising only yellow, red and black. Also on the north wall, above the passage to the diaconicon, a vine branch is still clearly visible between the fragments of surviving painting. The state of preservation of this portion makes it hard to advance a consistent theory regarding the original iconography (Fig. 51). We can infer from the fragments that the blue used for a detail that unfortunately can no longer be discerned, is *fritta egizia*[18].

[18] If the decoration were to prove the same as that on the arch of the north corridor (NEB), it is plausible that this blue could be the coloring of a bird's plumage.

Fig. 51

On the ceiling of the diaconicon (SEC), an area of painting covering approximately quarter of the vault has been discovered.

A classical cornice encloses a large roundel decorated with geometric motifs. The internal space is divided up by radii and concentric rings. The keystone of carved limestone is also the geometric center of the decoration (Fig. 52). In spite of the poor state of preservation, in a limited area it has been possible to observe, under a raking light, that the design was transferred by incision (Fig. 53).


Fig. 52

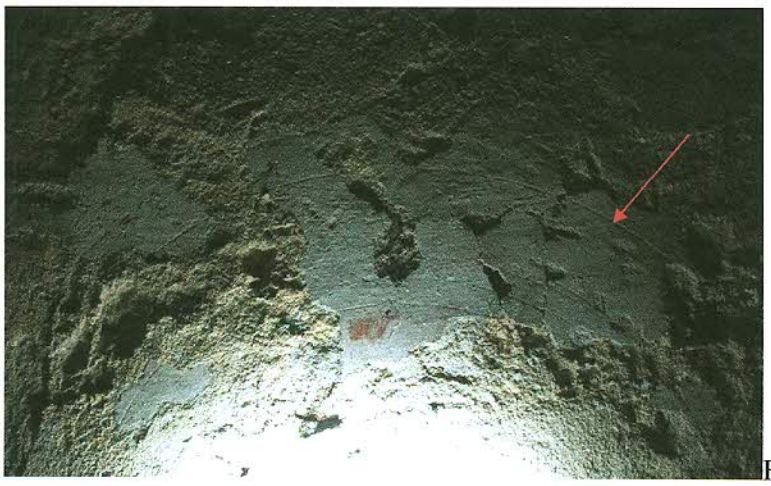


Fig. 53

The fragmentary state of the plaster has prevented us so far from attributing it to a specific phase of decoration. We think it would be advisable to complete work in this area before attempting a more detailed study[19].

[19] It is worth recalling that there is a similar decorative motif on the facade (Fig. 54) (See L. De Cesaris, A. Sucato, Red Monastery – Monastery of St. Bishoi, Conservation of the wall paintings – Final Report, 8 March – 20 April 2008.

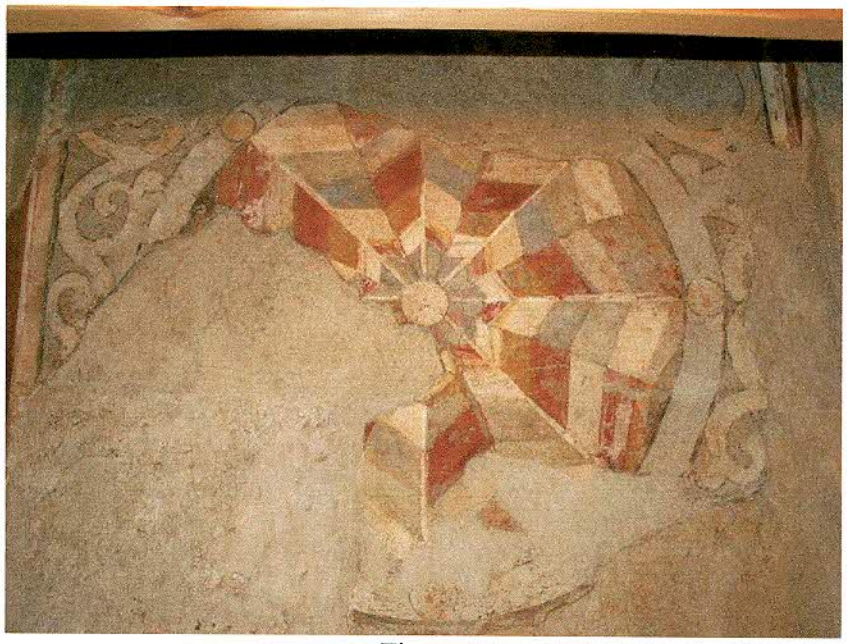


Fig. 54

STATE OF PRESERVATION AND PREVIOUS RESTORATION WORK

Masonry

Facade

Please see the Spring 2008 report[20] for a description of the state of preservation and special features of the masonry structure of the facade and changes made to it since it was first built.

[20] L. De Cesaris, A. Sucato, Red Monastery – Monastery of St. Bishoi, Conservation of the wall paintings – Final Report, 8 March – 20 April 2008.

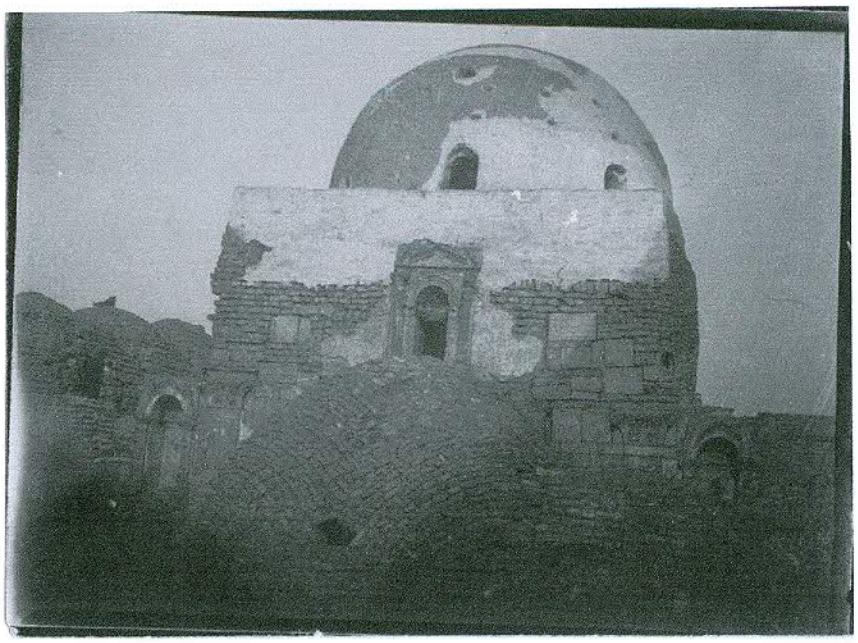


Fig. 55

We will limit ourselves here to a description of the state of preservation of the areas involved in the restoration campaign: the first two tiers to the north and south of the access arch to the triconch. The masonry structure in the first tier retains most of the original elements. The blocks flanking the jambs and the moldings of the access doors to the north and south corridors and the triconch are missing. Some of the corbels are broken, with pieces missing. The architraves of the doors giving access to the corridors and the passageways to the triconch appear to have been slightly displaced from their original positions. In the area of the access door to the north corridor, this movement may be connected with the junction between the late antique wall and that altered during the medieval phase (north wall). The impact of the wholesale rebuilding the Comité had to undertake for the entire front of the building can be seen on the side to the extreme south of the facade. Almost the entire stone arch of the access door to the south corridor has been replaced, leaving only a few original blocks in the plinths of the pilasters. The stone of these blocks is unstable and crumbling: large areas of the original surface have been lost and the stone has turned brown, indicating that in the past, there was capillary action by water that was presumably rich in nitrates (Figs.56 and 57). This capillary action is no longer taking place.


Fig. 56


Fig. 57

In the south corridor, repairs to the plaster carried out during the twentieth century prevent us from analyzing the state of preservation of the masonry[21]. In the archway between the corridor and the diaconicon the selective removal of modern plaster with the aim of uncovering fragments of original plaster has revealed extensive gaps in the original masonry.

North corridor (NEB)

As far as the state of preservation of the medieval masonry is concerned, the masonry of the north wall of the corridor and east wall of the prothesis appears to be well preserved and the walls display only slight cracks where the plaster has become detached. Please refer to the paragraph on working methods for masonry in the 2007 and 2008 reports[22] with regard to the south wall and related architectural changes to the monument.

In the west wall, the state of the plaster does not allow direct inspection of the condition of the masonry. A vertical crack in the center of the wall running from the impost of the vault down to the architrave, repaired during the work of the Comité, suggests that this is the point at which the medieval wall on the right meets the late antique wall on the left (Fig. 58).

[21] The major repairs to the south west corner of the facade and observation of the wall from outside in the space now occupied by the monastery's generator and the space housing the steps to the roof, suggest a massive attempt to consolidate and repair the structure in the past.
[22] L. De Cesaris, A. Sucato, Red Monastery – Monastery of St. Bishoi, Conservation of the wall paintings – Final Report, 26 October – 21 December 2007; L. De Cesaris, A. Sucato, Red Monastery – Monastery of St. Bishoi, Conservation of the wall paintings – Final Report, 8 March – 20 April 2008.


Fig. 58

Plaster

Facade (F)

In the first tier of the facade, on both the north and south sides, the plaster has been less exposed to natural agents of deterioration such as the weather and solar radiation. However, it is important to note how the damage caused by the removal and, in some cases, incorrect repositioning of many of the blocks (carried out by the Comité) often has a negative impact on the plaster, particularly at the corners of the moldings, semi-columns and pilasters and in areas where the woodwork has been replaced. The plaster is badly damaged in almost all the most exposed parts such as the corners of the pilasters, the joints where stone blocks have been moved and the areas adjacent to pieces of woodwork.

Repairs to this widespread damage were carried out in the twentieth century by the Comité and subsequently by the Egyptian Antiquities Organization. The repairs effected on the pilasters lateral to the architraves of the north and south doors giving access to the triconch were particularly drastic (see Figs. 5, 6 and19).

North corridor (NEB)

On the north wall affected by the major rebuilding work of the medieval period, the plaster is well-preserved with only a few patches missing, particularly in the corners and inside the niches at the points where the corbels were inserted. At the left-hand side of the base of the west wall, there is a large deep gap around the area where a wooden element was removed. There is a similar gap to the left of it, although this is offset several centimeters (see Fig. 45). Also on the west wall, a vertical crack divides the repairs carried out by the Comité (on the right) from the area in which the late antique plaster is still present (on the left). Two large repairs are visible on the south wall: the first, just below the pattern of large concentric circles, is probably connected with the phase of rebuilding during the medieval period; the second, close to the floor, was carried out by the Comité.

South corridor and diaconicon (SEB-SEC)

As already mentioned, the portion of late antique plaster on the north wall occupies only a strip some 80cm wide running along the impost of the vault. Before restoration, the edges of the fragment were partially covered by the layer of modern plaster applied to the entire area. Unfortunately, in the area above the access arch to the diaconicon, there is little original plaster left. What remains is concentrated on the left side of the arch (Fig. 59).


Fig. 59

The modern plaster is fairly well preserved and the few small gaps that exist are concentrated particularly on the underside of the arch between the corridor and the diaconicon. This plaster was removed in a number of small and accurately positioned test areas where fragments of late antique plaster remaining underneath could be recovered. In the south west quarter of the vault of the diaconicon, this work enabled us to recover a sizeable area of original plaster that, although very patchy, still shows typical painted decoration.

Paint layer

The state of preservation of the paint layer varies considerably as a result of natural and human causes. Natural wear and tear is associated with the monument's exposure to atmospheric agents and its colonization by various organisms. However, human damage is associated with the religious function of the various areas and the poor maintenance and restoration practices that have punctuated the building's history. Please refer to the paragraph on the state of preservation of the paint layer in the 2008 report for a detailed list of the main causes of damage to the paint layer[23].

During the 2009 mission, work was carried out as already described in three main areas: the north corridor (NEB) and the lower part of the prothesis (NEC) (east and south walls); the first tier of the façade (F); the south corridor and the vault of the diaconicon (SEB-SEC). The state of preservation of the painted surface was different in each area tackled. The paint layer in the north corridor was only coated with a thin layer of sooty particulate matter[24] while the south wall suffers from widespread abrasion that does not however affect its legibility. Certain technical characteristics, namely a thin layer of well-smoothed plaster, have favored this state of affairs. The fact that these paintings remained hidden beneath a layer of wash has proved to be their salvation. On the west wall, around the access door to the facade, there is thick sediment created when loose particulate matter combined with the residue of the mortar used during the medieval repairs.

In the area of the facade, frequent religious services and the passage of pilgrims mean that almost all the paint layer is patchy and coated with a thick layer of dirt and grease deposited as a result of repeated contact with the hands of the worshipers and the use of candles

[23] L. De Cesaris, A. Sucato, Red Monastery – Monastery of St. Bishoi, Conservation of the wall paintings – Final Report, 8 March – 20 April 2008.

[24] This is undoubtedly connected with the fact that it remained hidden beneath the medieval wash until our restoration work.

during services. As a result, on many of the panels, it has only proved possible to recover the outline of the decorative motifs (Figs. 60 and 61).


Fig. 60


Fig. 61

Furthermore, all the surfaces suffer from widespread abrasion associated with numerous attempts to dismantle, reposition and repair parts of the masonry.

In the south corridor (SEB) the strip of late antique plaster appears to be entirely obscured by a thick deposit of soot probably caused by the practice of burning oil lamps and candles (Fig. 62). In this area we think that the periodic cleaning operations to which the surface was subjected in antiquity have caused the slight darkening of the surface[25].

[25] Repeated cleaning with and without water causes the deterioration and alveolation of the plaster by encouraging the deposition of particulate matter deep within the structure of the plaster.


Fig. 62

The effect is the same as on the vault of the diaconicon (NEB): the fragments of painting recovered show at least the minimal presence of sooty deposits. The widespread detachment of the paint layer can undoubtedly be attributed its long-term concealment beneath modern, lime-based plaster.

RESTORATION WORK CARRIED OUT


Fig. 63


Fig. 64

Restoration work during this mission has followed the methodological guidelines first laid down in 2003. We have continued to refine our working methods in an attempt to solve specific problems encountered in the new areas tackled. Some specific methodologies, regarding the cleaning of the most seriously damaged limestone and undecorated plaster in particular, were perfected during this campaign.

The first task was to remove dust from the surfaces using soft bristle and sable brushes. Where portions of plaster and fragments and stratified pieces of the paint layer (palimpsest) were in immediate danger of falling, they were secured and consolidated by means of injections of acrylic resin[26] into clearly defined areas (Figs. 65 and 66).

This technique was employed in particular on several fragments of painted plaster on the vault of the diaconicon (SEC) and on the south and west walls of the north corridor (NEB).

[26] See L. De Cesaris, A. Sucato, Red Monastery – Monastery of St. Bishoi, Conservation of the wall paintings – Final Report, 8 March – 20 April 2008.

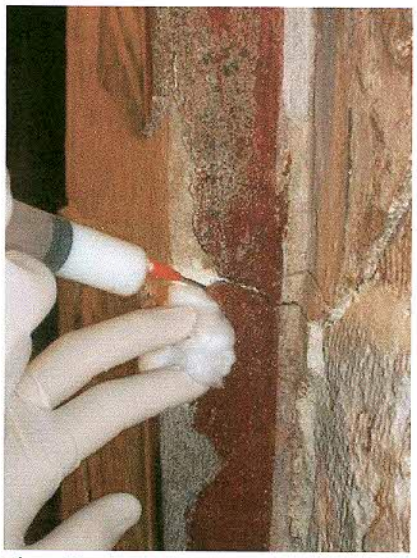


Fig. 65

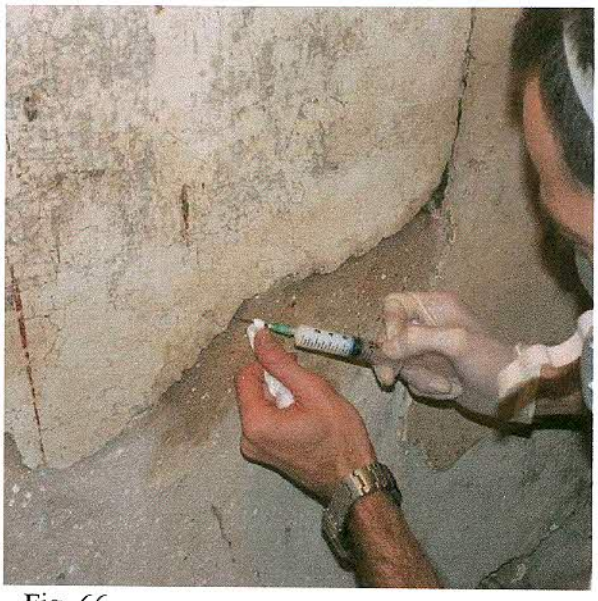


Fig. 66

In places where the plaster had been repaired or gaps plugged with inappropriate mortar during earlier restoration work, it was removed mechanically using micro-chisels and scalpels.

In places where the composition of the pointing was compatible with the original plaster, it was brought up to the level of the original paint layer using scalpels, then consolidated and given a patina.

This technique was employed on the vault of the diaconicon (SEC) in particular. In this case the plaster was taken down to the level of the fragments and presented (Fig. 67).


Fig. 67

However, in the case of the paintings discovered in the north and south corridors (NEB and SEB), the plaster was removed from around the fragments and from around the edges of the niches (NEB) (Fig. 68), to give it the appearance of having fallen off naturally.


Fig. 68

The repairs to the plaster were applied in coats, using a mix with medium-sized grains to fill gaps and finer grains on the surface. This kind of work proved necessary on the north and south sides of the first tier of the facade (F). These repairs were made extremely smooth for aesthetic reasons, as well as to give them particular mechanical resistance in areas where the passage of worshipers could cause further damage (Fig. 69).

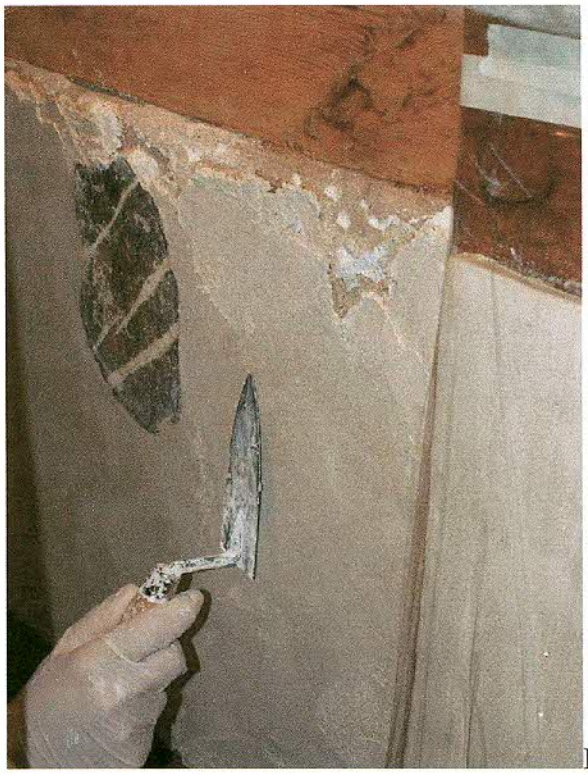


Fig. 69

At the base of the northernmost pilaster in the facade (F), we decided to restore the plaster only partially in order to leave visible the underlying decoration characteristic of the first phase (see Fig. 34). This decision was reached together with the Project Management.

Hydrated lime, local sand and a small percentage of finely powdered local limestone (1.5 parts lime, 2 parts sand and 1 part powdered limestone) were used to make the mortar (Fig. 67).

We decided to retain the plaster applied by the Comité in the south corridor (SEB) insofar as it was compatible with the current state of the monument and our restoration work. The composition of the mortar used for repairs in this area was the same as the previous one,

with a variation in the percentage of sand in order to make it similar to the plaster used by the Comité.
The plaster was consolidated by means of injections of liquid mortar (lime-based hydraulic mortar) made up of similar materials to the plaster[27].

Raised areas of the paint layer or white wash were stuck down by means of injections of acrylic resin in a 15% aqueous emulsion (ACRYL 33). In some cases slight pressure with a flexible spatula was required, interposing a sheet of polyethylene between the spatula and the surface. This technique was employed particularly on the female image inscribed within a clipeus in the facade (F) (south side) and on the west wall of the north corridor (NEB), site of a large area of test cleaning.


Fig. 70

This technique was necessary because the plaster is coated with several layers of whitewash that are not adhering to each other (see Fig. 26).

Where the paint layer was failing to adhere, it was consolidated using acrylic resin in a low 1.5% nitro diluent solution (PARALOID B72 methacrylate) applied using a fine spray and, where possible, a brush.

The methods used to clean the wall paintings have been described in detail in previous reports.

[27] For a more detailed description of this work and the materials used see the 2008 report: L. De Cesaris, A. Sucato, Red Monastery – Monastery of St. Bishoi, Conservation of the wall paintings – Final Report, 8 March – 20 April 2008.


Fig. 71


Fig. 72


Fig. 73

The system developed has shown itself to be effective and safe with regard to the constituent materials and to reduce mechanical stress on the painted surface. The cleaning system involves, in the first place, the use of organic solvents applied using Japanese paper and several single-ply paper tissues to dissolve the substances on the surface (oil- and resin-based varnish). To all intents and purposes, this is a process of stripping. Next, sooty deposits, oily residues and thin layers of saline efflorescence are removed using a slightly basic solution of inorganic salts applied on several thicknesses of paper tissue and working in small areas at a time (Figs. 71, 72 and 73). Thicker layers of saline efflorescence are removed mechanically using a scalpel.

Fig. 74

Fig. 75

The cleaning of the stonework required a system different to that used for the plaster. Owing to the nature of the local limestone, the sooty residues and particulate matter were particularly ingrained in the pores of the stone, creating consolidated deposits over wide areas. To clean them we decided to use the same solvent mixture used for the plaster types but applied in a different way. Wood pulp was used as a support since its tixotropic properties allow longer application times without the danger of excessive impregnation of the substrate (Figs. 76 and 77).

Application times varied from 7 to 20 minutes depending upon the thickness and resistance of the layers of dirt and incrustation to be removed.


Fig. 76


Fig. 77

Once the wood pulp was removed the surface was rinsed using sponges and soft-bristled brushes. In one area alone, at the base of the pilasters giving access to the north corridor (NEB) it proved necessary to carry out a one-off pre-consolidation before cleaning could take place as a result of serious state of exfoliation of the limestone. The same inorganic salt mixture described above was used for the unpainted plaster, but in this case it was applied using several paper tissues placed one on top of the other (Fig. 78). Once removed, the surface was well rinsed using sponges and sprayers (Fig. 79).


Fig. 78

Fig. 79

Fig. 80

Fig. 81


Fig. 82

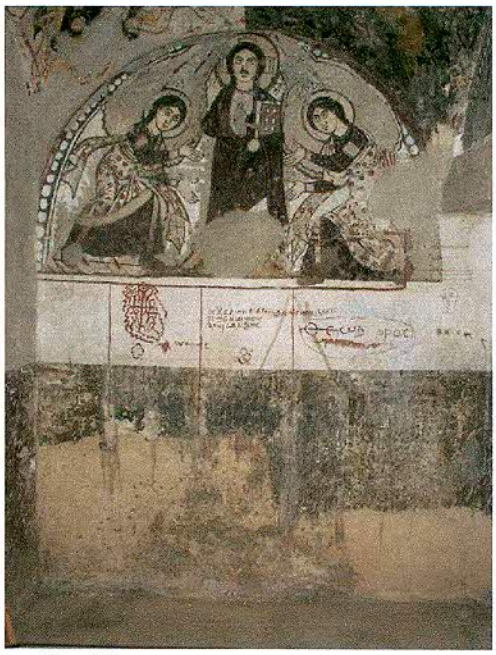


Fig. 83

In places where decorations have been painted directly on the stone, the stonework was cleaned using the technique adopted for the wall paintings[28].

In the north corridor (NEB) a one-off procedure to remove the wash, as described in detail in the 2008 report[29], was needed to reveal completely the pattern of large circles running along the south wall (Figs. 84 and 85).

[28] See L. De Cesaris, A. Sucato, Red Monastery – Monastery of St. Bishoi, Conservation of the wall paintings – Final Report, 26 October – 21 December 2007; L. De Cesaris, A. Sucato, Red Monastery – Monastery of St. Bishoi, Conservation of the wall paintings – Final Report, 8 March – 20 April 2008.

[29] L. De Cesaris, A. Sucato, Red Monastery – Monastery of St. Bishoi, Conservation of the wall paintings – Final Report, 8 March – 20 April 2008.

Fig. 84

Fig. 85

In the same corridor (NEB), several Coptic inscriptions of historical interest were cleaned partially (Figs. 86 and 87). This decision was reached together with the Project Management to allow epigraphists to observe the inscriptions in their original state of preservation and interpret them.

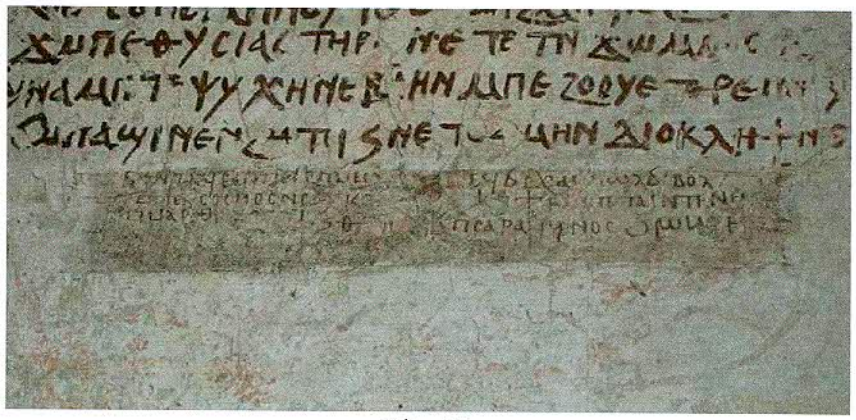


Fig. 86

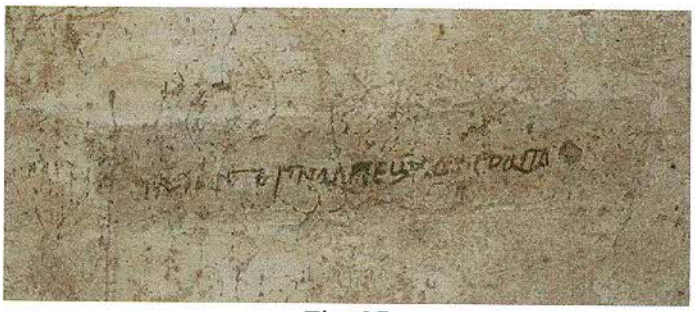


Fig. 87

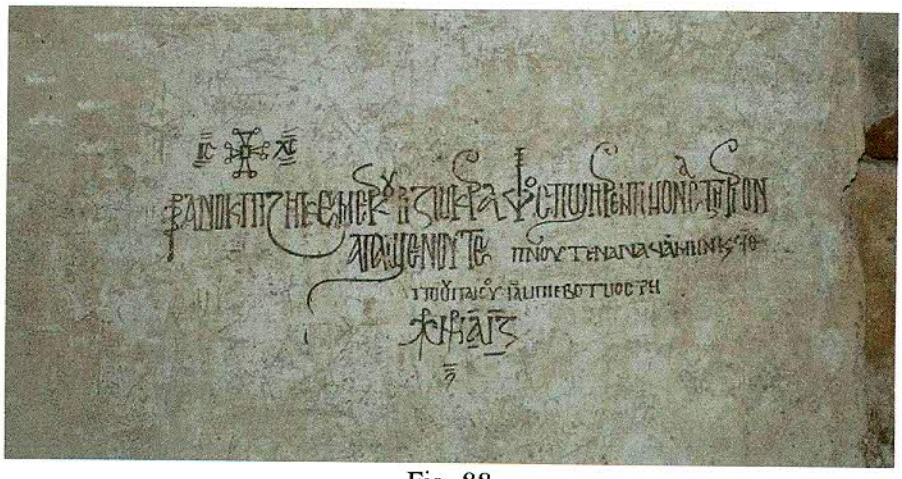


Fig. 88

The only inscriptions to be completed are the medieval ones on the north wall (Fig. 88) and in red on the south wall (Fig. 89).

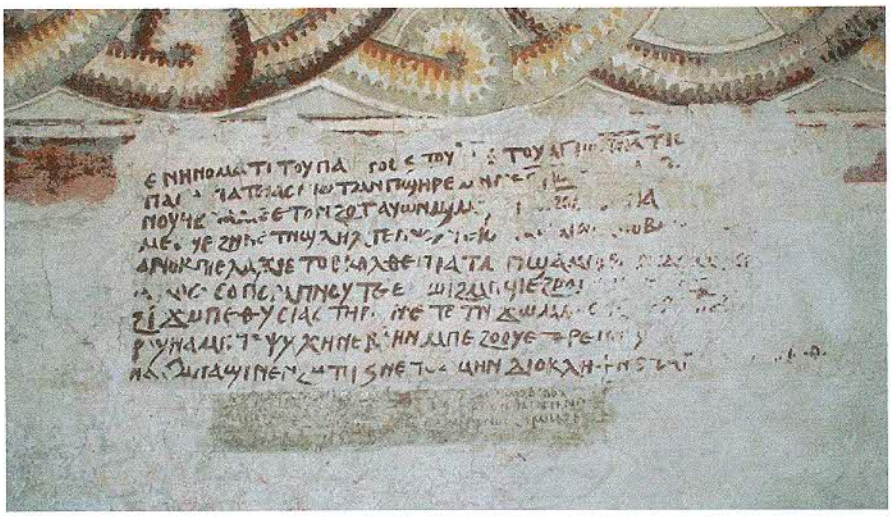


Fig. 89

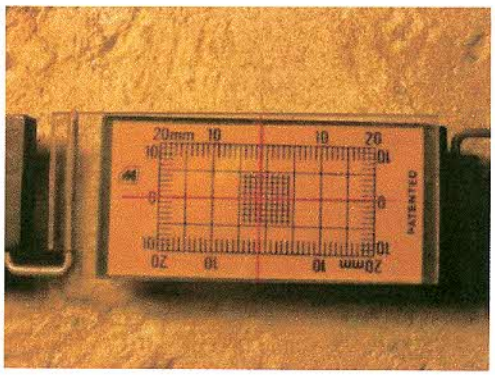
The paint was removed from the woodwork using a mixture of organic solvents (nitro diluent and acetone) (Fig. 90). The woodwork was treated with a permetrine-based product (XIREIN) to treat it against attack by insects and then protected with acrylic resin in a 3% nitro diluent solution (PARALOID B72).

Fig. 90

The gaps in the paint layer were blended in using the technique of toning down with watercolors (WINDSOR & NEWTON). This technique restores legibility to the artistic palimpsest and painted surface and clarifies the reading and order of the different paint layers that can be seen[30].


Fig. 91

Finally, the latest readings from the crack monitors installed on the access archway to the triconch were compared with those taken during the previous campaign (Figs. 92, 93, 94 and 95). No variations caused by possible settling of the building were recorded[31].



[30] During this mission no areas of painting requiring hatching were encountered.
[31] The difference between Figs. 94 and 95 (of the order of 1/6 mm) can be attributed to a slight difference in the position of the camera when the two readings were taken.

Fig. 92 –Spring 2008

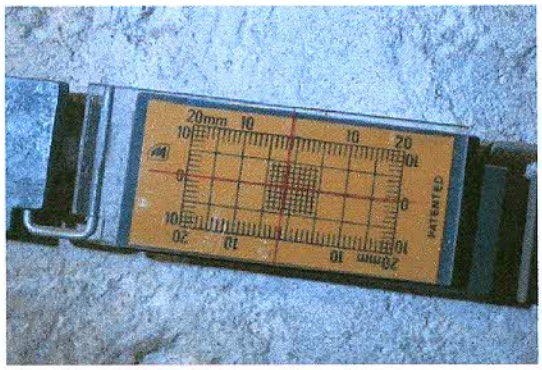


Fig. 93- Spring 2009

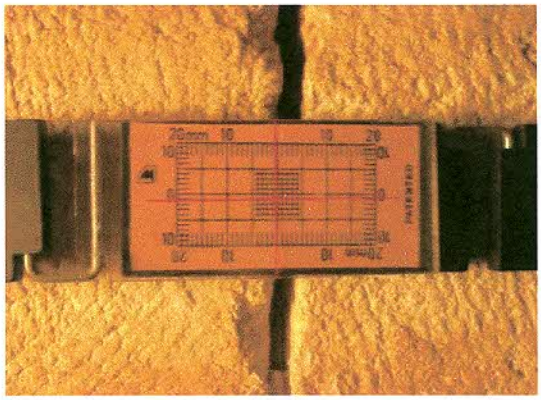


Fig. 94- Spring 2008

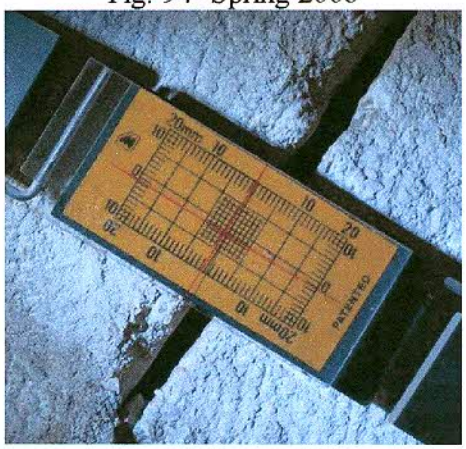


Fig. 95- Spring 2009

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